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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/695,327

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Yin-Chun Huang

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EXAMINER

VO, QUANG N

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/695,327

Applicant(s)

HUANG ET AL.

Examiner

Quang N. Vo

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to claims 1-13 and 18-20 have been considered but are moot in view of the new ground(s) of rejection.

Newly submitted claims 14-17 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 14-17 drawn to scanner (device), classified in class 358, subclass 408.

Claims 1-13 and 18-20 drawn to a method for reducing image noise, classified in class 358, subclass 463.

Claims 14-17 and (1-13 and 18-20) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability and (2) that the subcombination has utility by itself or in other combinations. (MPEP 806.05 (c)).

In the instant case, the combination (a scanner) as claimed in claim 14 does not require the particulars of the subcombination claim 6 (a method of reduce noise) as claimed for patentability because, for example: the specific in the subcombination of claim 6 recites, wherein a pattern composed by the halftone pattern method is a matrix pattern, and wherein the row and column numbers of the matrix pattern are dependent on the number of bits reduced in the step of reducing a plurality of bits of the scale of each pixel in the image.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show step 106 to 114 in procedure 100 as described in the specification paragraph 0027. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-13, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Parker et al. (Parker) (US 5,323,247).

With regard to claim 1, Parker discloses a method for reducing image noise in a scanned image (e.g., desirable halftone algorithm; free from obvious or annoying artifacts, column 3, lines 1-8; lines 51-61) comprising: decreasing a color level of the scanned image by reducing a number of bits of a full color level of one or more pixels in the scanned image to form a reduced color level image (e.g., an image is first encoded by reducing the gray image to a halftone image, column 8, lines 11-25); composing a pattern having less color level than the full color level (e.g., block 1104, figure 11); recombining the full color level of the one or more pixels in the scanned image by combining the reduced color level image with the pattern (e.g., figure 11, column 22, lines 48-68).

With regard to claim 2, Parker discloses wherein the reduced color level image and the pattern are combined using a bit enhanced method (e.g., 8 bit gray scale level, providing 256 possible gray scale, column 2, lines 52-61).

With regard to claim 3, Parker discloses wherein combining the reduced color level image with the pattern restores the one or more pixels to include a same number of bits as before the color level is decreased (e.g., figure 11, column 22, lines 48-68).

With regard to claim 4, Parker discloses wherein the pattern comprises a halftone pattern (e.g., figure 11).

With regard to claim 6, Parker discloses a method for reducing image noise wherein the image is composed of a plurality of pixels having a scale of bits (e.g., 8 bit gray scale level, providing 256 possible gray scale, column 2, lines 52-61; e.g., desirable halftone algorithm; free from obvious or annoying artifacts, column 3, lines 1-8; lines 51-61), comprising the steps: reducing a plurality of bits of the scale of each pixel in the image (e.g., an image is first encoded by reducing the gray image to a halftone image, column 8, lines 11-25); recombining the scale of each pixel in the image, wherein the step of recombining the scale of each pixel in the image comprises a halftone pattern method, wherein a pattern composed by the halftone pattern method is a matrix pattern, and wherein the row and column numbers of the matrix pattern are dependent on the number of bits reduced in the step of reducing a plurality of bits of the scale of each pixel in the image (e.g., figure 11, column 22, lines 48-68).

With regard to claim 7, Parker discloses wherein the color level of the pattern depends on the number of bits reduced from the full color level (e.g., figure 11, column 22, lines 48-68).

With regard to claim 8, the subject matter is similar to claim 1. Therefore, the rejection on claim 8 is set forth as claim 1.

With regard to claim 9, the subject matter is similar to claim 3. Therefore, the rejection on claim 9 is set forth as claim 3.

With regard to claim 10, Parker discloses wherein the halftone pattern comprises a matrix having a number of rows equal to the decreased number of bits (e.g., the error image $e(i, j)$ (pattern), column 22, lines 1-23).

With regard to claim 11, Parker discloses wherein the halftone pattern comprises a matrix having a number of rows equal to the decreased number of bits (e.g., the error image $e(i, j)$ (pattern), column 22, lines 1-23).

With regard to claim 12, Parker discloses further comprising displaying the image including the recombined image level on a computer monitor (column 1, lines 46-54).

With regard to claim 13, Parker discloses further comprising filling out missing codes of the one or more pixels of the image using a bit enhance method (column 2, lines 52-68; e.g., block 1104, figure 11, column 22, lines 48-68).

Referring to claim 18:

Claim 18 is the apparatus claim corresponding with method steps in claim 1. Therefore claim 18 is rejected as set forth above for claim 1.

Referring to claim 19:

Claim 19 is the apparatus claim corresponding with method steps in claim 3. Therefore claim 19 is rejected as set forth above for claim 3.

With regard to claim 20, Parker discloses wherein the halftone pattern comprises a matrix having a number of rows and columns equal to the decreased number of bits (e.g., figure 11, column 22, lines 48-68).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al. (Parker) (US 5,323,247) as applied to claim 1 above, and further in view of Young et al. (Young) (US 6,269,193).

With regard to claim 5, Parker differs from claim 5, in that he does not explicitly show wherein the number of bits reduced from the full color level is set to an image noise level.

Young discloses the number of bits reduced from the full color level is set to an image noise level (e.g., a look-up-table (LUT) is applied to the image data to reduce the number of bits per pixel required to represent the image without introducing quantization into the image. This step is known as companding. The companding function is derived from the inherent noise properties of the image acquisition system, column 3, lines 62-67).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Parker to include the number of bits reduced from the full color level is set to an image noise level as taught by Young. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Parker by the teaching of Young to reduce image noise.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Vo whose telephone number is 5712701121. The examiner can normally be reached on 7:30AM-5:00PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 5712727440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Quang N. Vo 12/31/07

Patent Examiner



KING Y. POON
SUPERVISORY PATENT EXAMINER